

Technical Report 5-20208 & 5-20209
Contract No. DAAH01-98-D-R001
Delivery Order No. 11

**Microelectronic Status Analysis and Secondary Part Procureability
Assessment Process Tools and Procedures Development and Implementation**

(5-20208 & 5-20209)

Final Technical Report for Period
17 June 1998 through 17 December 1998

October 1999

Prepared by:

Gary A. Maddux

Systems Management & Production Lab
The University of Alabama in Huntsville
Huntsville, Alabama 35899

Prepared for:

U.S. Army Aviation & Missile Command
Redstone Arsenal, AL 35898
Attn.: Mr. Robert Gibbs

20000309 067

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE October 99	3. REPORT TYPE AND DATES COVERED Final Report: 17 JUN 98 thru 17 DEC 98		
4. TITLE AND SUBTITLE Microelectronic Status Analysis and Secondary Part Procureability Assessment Process Tools and Procedures Development and Implementation		5. FUNDING NUMBERS		
6. AUTHOR(S) Gary A. Maddux				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Univ. of Alabama in Huntsville Huntsville, AL 35899		8. PERFORMING ORGANIZATION REPORT NUMBER 5-20208 & 5-20209		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) AMSAM-RD-SE-MT (B. Gibbs) U.S. Army Aviation & Missile Command Redstone Arsenal, AL 35898		10. SPONSORING/MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for Public Release; Distribution is unlimited.		12b. DISTRIBUTION CODE A		
13. ABSTRACT (Maximum 200 words) The Industrial Operations Division (IOD), Systems Engineering and Production Directorate (SEPD), AMCOM has the mission and function of providing microelectronic technology assessments, and producibility and supportability analyses for AMCOM weapon systems. IOD evaluates the impacts of nonavailability of microelectronic parts on the life cycle supportability of the AMCOM weapon systems and evaluates the producibility of AMCOM weapon systems. IOD required engineering support in performing microelectronic technology and availability assessments for several hundred items and in assessing the impact of nonavailability on AMCOM weapon systems. IOD also required engineering support developing state of the art microelectronic technology and availability assessments tools and procedures for AMCOM weapon systems. The Systems Management and Production Laboratory at UAH was tasked to provide this engineering support and analytical capability.				
14. SUBJECT TERMS DMSMS			15. NUMBER OF PAGES 2	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

PLEASE CHECK THE APPROPRIATE BLOCK BELOW

DAO# _____

☐ _____ copies are being forwarded. Indicate whether Statement A, B, C, D, E, F, or X applies.

☒ DISTRIBUTION STATEMENT A:
APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

☐ DISTRIBUTION STATEMENT B:
DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES ONLY; (indicate Reason and Date). OTHER REQUESTS FOR THIS DOCUMENT SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT C:
DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND THEIR CONTRACTS (Indicate Reason and Date). OTHER REQUESTS FOR THIS DOCUMENT SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT D:
DISTRIBUTION AUTHORIZED TO DoD AND U.S. DoD CONTRACTORS ONLY; (Indicate Reason and Date). OTHER REQUESTS SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT E:
DISTRIBUTION AUTHORIZED TO DoD COMPONENTS ONLY; (Indicate Reason and Date). OTHER REQUESTS SHALL BE REFERRED TO (Indicate Controlling DoD Office).

☐ DISTRIBUTION STATEMENT F:
FUTHER DISSEMINATION ONLY AS DIRECTED BY (Indicate Controlling DoD Office and Date) or HIGHER DoD AUTHORITY.

☐ DISTRIBUTION STATEMENT X:
DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND PRIVATE INDIVIDUALS OR ENTERPRISES ELIGIBLE TO OBTAIN EXPORT-CONTROLLED TECHNICAL DATA IN ACCORDANCE WITH DoD DIRECTIVE 5230.25. WITHHOLDING OF UNCLASSIFIED TECHNICAL DATA FROM PUBLIC DISCLOSURE, 6 Nov 1984 (indicate date of determination). CONTROLLING DoD OFFICE IS (Indicate Controlling DoD Office).

☐ This document was previously forwarded to DTIC on _____ (date) and the AD number is _____.

☐ In accordance with provisions of DoD instructions. The document requested is not supplied because:

☐ It will be published at a later date. (Enter approximate date, if known).

☐ Other. (Give Reason)

DoD Directive 5230.24, "Distribution Statements on Technical Documents," 18 Mar 87, contains seven distribution statements, as described briefly above. Technical Documents must be assigned distribution statements.

GARY A. MADDOX

Print or Type Name

Gary A. Maddox 11 Oct 89

Authorized Signature/Date

256 876 0828

Telephone Number

PREFACE

This technical report was prepared by the staff of the Research Institute, The University of Alabama in Huntsville. The purpose of this report is to provide documentation of the work performed and results obtained under Delivery Order 11 of AMCOM Contract No. DAAH01-98-D-R001. Mr. Gary Maddux was the principal investigator. Mr. Robert Gibbs, Industrial Operations Division, Systems Engineering and Production Directorate, Research, Development, and Engineering Center, U.S. Army Aviation & Missile Command, provided technical coordination.

The views, opinions, and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation.

Except as provided by the Contract Data Requirements List DD Form 1423, hereof, the distribution of any contract report in any state of development or completion is prohibited without the approval of the Contracting Officer.

Prepared for: Commander
U.S. Army Aviation & Missile Command
Redstone Arsenal, AL 35898

I have reviewed this report, dated October 1999 and the report contains no classified information.

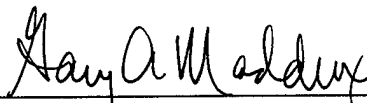

Principal Investigator

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	OBJECTIVES	1
3.0	STATEMENT OF WORK	1
4.0	DEVELOPMENT OF DMSMS PROCESSES & PROCEDURES ..	2
5.0	CONCLUSIONS AND RECOMMENDATIONS	2

1.0 Introduction

The Industrial Operations Division (IOD), Systems Engineering and Production Directorate (SEPD), Research, Development, and Engineering Center (RDEC), Aviation & Missile Command (AMCOM) has the mission and function of providing microelectronic technology assessments, and producibility and supportability analyses for AMCOM weapon systems. IOD evaluates the impacts of nonavailability of microelectronic parts on the life cycle supportability of the AMCOM weapon systems and evaluates the producibility of AMCOM weapon systems. IOD required engineering support in performing microelectronic technology and availability assessments for several hundred items and in assessing the impact of nonavailability on AMCOM weapon systems. IOD also required engineering support developing state of the art microelectronic technology and availability assessments tools and procedures for AMCOM weapon systems.

In order to facilitate the development of these technologies, the Systems Management and Production Laboratory at The University of Alabama in Huntsville Research Institute was tasked to conduct an in-depth analysis as to the processes and procedures used for Diminishing Manufacturing Sources and Material Shortages (DMSMS) analysis.

2.0 Objective

The purpose of the work to be performed under this task order was to provide engineering support to develop state of the art tools, processes, and procedures for implementing a weapon system modernization plan and strategy used in AMCOM weapon systems and which may have applicability to all weapon systems. Determination of the producibility of AMCOM weapon systems was required and included reactive and proactive parts/system obsolescence management.

3.0 Statement of Work

The statement of work, as outlined in delivery order 11, was as follows:

3.1 UAH shall analyze current directives, procedures, processes,, existing Government owned and leased tools currently in use. This understanding shall assist UAH in development of a weapon system modernization plan. UAH shall develop an understanding of the methodology utilized to analyze weapon system state of modernization. UAH shall also gain an understanding of the current selection criteria utilized by the Department of the Army for modernization candidates and justification.

3.1.1 UAH shall develop a baseline template and approach to implement modernization candidates which meet selection criteria for evaluation/determination of parts

standardization opportunities. UAH shall evaluate all available data such as industry data bases, sources accessible through the world wide web, part manufacturers, distributors, suppliers, part locators, DoD supply centers, and other sources and programs for possible use within the baseline template. UAH shall evaluate and determine the effectiveness and applicability of legacy and state of the art automated data base development opportunities that streamline and enhance the standardization process.

- 3.2 UAH shall develop and institute a new modernization implementation process, utilizing existing portions of the E-MOAT system where necessary, and utilizing other tools, technologies, sources, and approaches as deemed appropriate. UAH shall present the recommended process and implement the new approach as directed by IOD.

4.0 Development of DMSMS Processes and Procedures

Under this task members of the UAH Systems Management and Production Lab performed a detailed engineering analysis on the current processes and procedures used to determine the state of DMSMS. Specifically, microelectronic component databases were analyzed according to their applicability to the AMCOM environment. The analysis included the current as is process, plus recommended solutions to meet future AMCOM and SEPD needs.

The results of this task were published and delivered to IOD under separate cover.

5.0 Conclusion and Recommendations

During the time frame allocated by the delivery order, members of the UAH Systems Management and Production Lab, with the cooperation of representatives from AMCOM Systems Engineering and Production Directorate developed enhanced processes and procedures to address the DMSMS needs of AMCOM project offices. Because of the rapidly changing microelectronics industry, it is imperative that this analysis be refreshed on a periodic basis.